



State of Utah

JON M. HUNTSMAN, JR.  
*Governor*

GARY R. HERBERT  
*Lieutenant Governor*

## DEPARTMENT OF TRANSPORTATION

JOHN R. NJORD, P.E.  
*Executive Director*

CARLOS M. BRACERAS, P.E.  
*Deputy Director*

October 16, 2007

TO ALL BIDDERS CONCERNED:

SUBJECT: NH-0006(1)216  
US-6, White River to MP 218.73  
Addendum No. 2

To Whom It May Concern:

We are submitting the following changes to the subject project.

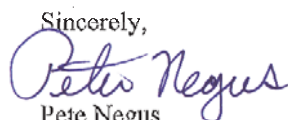
1. Special Provision 02845S "Soil Nail Wall Design and Construction" has been revised.
2. Typical Sheet 1A has been revised.

**Please consider these revisions before submitting your bid.**

\*\*\*ADDENDUM IS AVAILABLE AND MAY BE DOWNLOADED FROM THE UDOT WEBSITE AT  
<http://www.udot.utah.gov/index.php?m=c&tid=317>

**RECEIPT OF THIS ADDENDUM MUST BE ACKNOWLEDGED WHEN YOU SUBMIT YOUR BID. YOUR BID WILL  
BE DECLARED NON-RESPONSE IF YOU DO NOT ACKNOWLEDGE THIS ADDENDUM.**

Sincerely,  
  
Daryl Friant  
UDOT Project Manager

Sincerely,  
  
Pete Negus  
Deputy Construction Engineer

Attach.

**SPECIAL PROVISION**

**PROJECT # NH-0006(1)216**

**SECTION 02845S**

**SOIL NAIL WALL DESIGN AND CONSTRUCTION**

**Add Section 02845:**

**PART I GENERAL**

**1.1 SECTION INCLUDES**

- A. Submittal, for the Engineer's acceptance, of soil nail wall design and construction qualifications.
- B. Following acceptance of qualifications, design soil nail walls on the south side of the existing bridge abutments of the Price River/UPRR bridge in accordance with the arrangement shown on the plans.
- C. Submittal, for the Engineer's acceptance, of soil nail wall design calculations, drawings, specifications, and construction approach.
- D. Construction of the soil nail walls in conformance with the accepted calculations, drawings, specifications, and construction approach.
- E. Monitoring and control of ground deformation in the vicinity of the soil nail wall.

**1.2 RELATED SECTIONS**

- A. Section 000555 : Prosecution and Progress

**1.3 DEFINITIONS**

- A. Soil Nail as used in these specifications is intended as a generic term and refers to a reinforcing bar grouted into a drilled hole installed in any type of ground. Soil nail walls are built from the top down in existing ground.

- B. Soil nailing work shall include excavating in accordance with the staged lifts shown in the contractor's accepted plans; drilling soil nail drill holes to the specified minimum length and orientation indicated on the contractor's accepted plans; providing, placing and grouting encapsulated or epoxy coated nail bar tendons into the drill holes; placing drainage elements; placing shotcrete reinforcement; applying shotcrete facing over the reinforcement; attaching bearing plates and nuts; performing nail testing; and installing instrumentation.
- C. Shotcrete facing and wall drainage work consists of furnishing all materials and labor required for placing and securing geocomposite drainage material, connection pipes, footing drains, weep holes and horizontal drains, drainage gutter, reinforcing steel and shotcrete for the permanent shotcrete facing and nail head bearing plates and nuts for the soil nail walls shown on the contractor's accepted plans. The Work shall include any preparatory trimming and cleaning of soil surfaces and shotcrete cold joints to receive new shotcrete.

#### **1.4 SUBMITTALS**

- A. Experience Qualifications: At least 45 calendar days before the planned start of wall excavation, the Contractor shall submit his experience qualifications and details for the referenced design and construction project, including a brief description of previous soil nail wall projects with the owner's name and current phone number. Upon receipt of the experience qualifications submittal, the Engineer will have 15 calendar days to approve or reject the proposed soil nailing Contractor and Designer.
- B. At least 30 calendar days before the planned start of wall excavation, submit three complete sets of design calculations and working drawings to the Engineer for review and acceptance. Include all details, dimensions, quantities, ground profiles, utilities, existing structures, and cross-sections necessary to construct the wall. Verify the limits of the wall and ground survey data before preparing drawings. The Engineer will approve or reject the Contractor's submittals within 15 calendar days after receipt of a complete submission. If revisions are necessary, make the necessary corrections and resubmit three revised sets. Wall construction or incorporation of materials into the work shall not occur until the submittal requirements are satisfied and found acceptable to the Engineer. Changes or deviations from the accepted submittals must be re-submitted for acceptance. No adjustments in contract time will be allowed due to incomplete submittals.
- C. Revise the drawings when plan dimensions are revised due to field conditions or for other reasons. Within 30 days after completion of the work, submit as-built drawings to the Engineer. Provide revised design calculations signed and sealed by the approved Registered Professional Engineer for all design changes made during the construction of the wall.

- D. Submit, not less than seven days prior to commencing wall excavation, written documentation of the shotcrete finisher's and nozzlelemen's qualifications including proof of ACI certification, for acceptance by the Engineer.
- E. Monitoring and instrumentation plan. The monitoring and instrumentation plan shall be accepted by the Engineer prior to beginning any construction work on the soil nail wall.
- F. Nail verification test plan (minimum of one sacrificial test nail), and equipment specifications and calibration data.

## **PART II PRODUCTS**

### **2.1 SOLID BAR NAIL TENDONS**

- A. AASHTO M 31/ASTM A 615, Grade 60, deformed bar, continuous without splices or welds, new, straight, undamaged, epoxy coated or encapsulated as accepted by the Engineer, threaded a minimum of 6 inch on the wall anchorage end to allow proper attachment of bearing plate and nut. Threading may be continuous spiral deformed ribbing provided by the bar deformations. Self-drilling/grouting nails may be used if accepted by the Engineer.
- B. Fusion Bonded Epoxy Coating: ASTM A 775. Minimum 0.12 inch thickness electrostatically applied. Bend test requirements are waived. Coating at the wall anchorage end of epoxy-coated bars may be omitted over the length provided for threading the nut against the bearing plate.
- C. Encapsulation: shall provide at least 0.2 inch of grout cover over the nail bar and be resistant to ultra violet light degradation, normal handling stresses, and grouting pressures.
- D. Centralizers: Manufactured from Schedule 40 PVC pipe or tube, steel or other material not detrimental to the nail steel (wood shall not be used); securely attached to the nail bar; sized to position the nail bar within 1 inch of the center of the drill hole; sized to allow tremie pipe insertion to the bottom of the drill hole; and sized to allow grout to freely flow up the drill hole.
- E. Nail Grout: Neat cement or sand/cement mixture with a minimum three day compressive strength of 1,500 psi and a minimum 28-day compressive strength of 3,000 psi per AASHTO T 106/ASTM C 109.
- F. Admixtures: AASHTO M 194/ASTM C 494. Admixtures which control bleed, improve flowability, reduce water content and retard set may be used in the grout subject to review and acceptance by the Engineer. Accelerators are not permitted. Expansive admixtures may only be used in grout used for filling sealed

encapsulations. Admixtures shall be compatible with the grout and mixed in accordance with the manufacturer's recommendations.

- G. Cement: AASHTO M 85/ASTM C 150, Type I, II, III or V.
- H. Bar Couplers: Bar couplers shall be epoxy coated and develop the full ultimate tensile strength of the bar as certified by the manufacturer.

## **2.2 SHOTCRETE**

- A. Shotcrete shall comply with the requirements of ACI 506.2, "Specifications for Materials, Proportioning and Application of Shotcrete," except as otherwise specified. Shotcrete shall consist of an application of one or more layers of concrete conveyed through a hose and pneumatically projected at a high velocity against a prepared surface. Shotcrete may be produced by either a wet-mix or dry-mix process.
- B. Shotcrete Mix Design. The Contractor must receive notification from the Engineer that the proposed mix design and method of placement are acceptable before shotcrete placement can begin.
- C. Provide a shotcrete mix capable of attaining 2,000 psi compressive strength in three days and 4,000 psi in 28 days. The average compressive strength of each set of three test cores extracted from test panels or wall face must equal or exceed 85 percent of the specified compressive strength, with no individual core less than 75 percent of the specified compressive strength, in accordance with ACI 506.2. The boiled absorption of shotcrete, when tested in accordance with ASTM C 642 at seven days, shall not exceed 8.0 percent.
- D. Both preconstruction test panels and production test panels or test cores from the wall facing are required. Shotcreting and coring of test panels shall be performed by qualified personnel in the presence of the Engineer according to ACI 506.2 and Appendix C of FHWA- SA-96-069R, rev October 1998. The Contractor shall provide equipment, materials, and personnel as necessary to obtain shotcrete cores for testing including construction of test panel boxes, field curing requirements and coring. Compressive strength testing will be performed by the Engineer. Shotcrete final acceptance will be based on the 28-day strength.

## **PART III EXECUTION**

### **3.1 GEOTECHNICAL DATA**

- A. Soil materials expected to be encountered in the soil nail wall on the south side of the west abutment consist of silty sand overlying stiff to very stiff clay (see BH1 on Soil Data Sheet I for Structure C-949 in the plan set). Granular fill soils placed

around the existing structures abutment and wing walls (that was not encountered in the boring) may also be encountered.

- B. Consider the potential for encountering low-cohesion fill materials when designing the soil nail wall, lift heights, and drilling and grouting methods. Samples obtained from drilling are available for review at the UDOT foundation testing laboratory located at 4501 South 2700 West, Salt Lake City, Utah.
- C. Additional geotechnical investigation may be performed by the wall designer as deemed necessary to complete an adequate design if existing data is determined insufficient by the designer. The cost of the additional investigation shall be included in the cost of the soil nail walls.

### **3.2 SOIL NAIL WALL GENERAL REQUIREMENTS**

- A. The soil nail wall shall be designed by a Registered Professional Engineer with experience in the design of at least three successfully completed permanent soil nail retaining wall projects over the past three years. The wall designer may be either an employee of the Contractor or a separate Consultant designer meeting the stated experience requirements.
- B. Contractor's Experience Requirements. The Contractor shall be experienced in the construction of permanent soil nail retaining walls and have successfully constructed at least three projects in the last three years involving construction of permanent soil nail retaining walls totaling at least 10,000 ft<sup>2</sup> of wall face area and at least 500 permanent soil nails.
- C. This work consists of designing and constructing permanent soil nail retaining walls at the locations shown on the drawings. Furnish all labor, plans, drawings, design calculations, or other materials and equipment required to design and construct the soil nail walls in accordance with this Specification, the report FHWA- SA-96-069R, rev October 1998, the report FHWA-SA-93-068 (rev. July 1998), and the project drawings.

### **3.3 SOIL NAIL WALL DESIGN REQUIREMENTS**

- A. Design the soil nail walls using the Service Load Design (SLD) procedures contained in the FHWA "Manual for Design and Construction Monitoring of Soil Nail Walls," Report No. FHWA- SA-96-069R, rev October 1998. The required

safety factors, allowable strength factors and minimum global stability soil factors of safety shall be in accordance with the FHWA Manual, unless specified otherwise.

- B. Estimated soil design shear strength parameters shall be in accordance with the materials as described in Section 3.1.A of this specification and/or information gathered by the soil nail wall designer.
- C. Slope and external surcharge loads from traffic and existing and new bridge structures shall be developed from as-built plans for the existing bridge and plans for modification of the existing bridge. The walls shall be warped or steepened around existing and new modifications to existing bridge structures as necessary to provide proper support for these features and avoid undercutting of existing roadway.
- D. The wall shall be finished with a permanent shotcrete wall facing, colored to match the general tone of the existing structure. To provide protection against long term undercutting by erosion, the shotcrete shall extend at the toe of the walls to at least 2 ft below the new soil catch line at all points.
- E. Horizontal waler reinforcement shall be provided.
- F. Provide expansion joints and contraction joints at appropriate intervals for the wall design.
- G. Provide additional erosion protection if necessary for the wall design.
- H. Locate the top row of nails within 3 ft of the top of the wall. The distance between the lower course of nails and the average base of the wall shall not be greater than two thirds of the average vertical nail spacing.
- I. Justify soil nail corrosion protection requirements in the design so that a minimum life span of 75 years for each of the walls is provided.
- J. The soil nail design shall take into account the locations of existing abutment drilled shafts and any other utilities or obstructions in the area of construction.
- K. Wall locations and wall batter angles shall be as shown on the plans or as accepted by the Engineer.
- L. Backwall drainage through weep holes shall be provided. Backwall drainage shall be transmitted down the wall through geotextile drainage strips. Drainage from multiple strips may be collected and conveyed to a single weep hole if the conduit is appropriately sized.

- M. Provision shall be made to prevent concentrated flow or runoff over the top surface of the walls.
- N. Structural design of any individual wall elements not covered in the FHWA manual shall be by the service load design method in conformance with Article 3.22 and other appropriate articles of the 15th Edition of the AASHTO Standard Specifications for Highway Bridges including current interim specifications.
- O. The seismic design acceleration coefficient is 0.22g.
- P. Design calculations shall include, but not be limited to, the following items:
1. A written summary report which describes the overall soil nail wall design.
  2. Applicable code requirements and design references.
  3. Nail wall critical design cross-section geometry including soil strata and location, magnitude, and direction of design slope or external surcharge loads and piezometric levels (if applicable).
  4. Design criteria including estimated soil shear strengths (friction angle and cohesion), unit weights, and ground-grout pullout resistances and nail drill hole diameter assumptions.
  5. Partial safety factors/strength factors (for Service Load Design) used in the design on the pullout resistance, surcharges, soil unit weights, nail head strengths, and steel, shotcrete, and concrete materials. Minimum required global stability soil factor of safety for SLD design.
  6. Seismic design acceleration coefficient.
  7. Design calculation sheets with the project number, wall locations, designations, date of preparation, initials of designer and checker, and page number at the top of each page. Provide an index page with the design calculations.
  8. Design notes including an explanation of any symbols and computer programs used in the design.
  9. Nail wall final design cross-section geometry including soil strata and location, magnitude, and direction of slope or external surcharge loads and piezometric levels (if applicable) with critical slip surface shown along with minimum calculated global stability soil factor of safety, and required nail lengths and strengths (nail bar sizes and grades) for each nail row.
  10. Structural design calculations for wall facing and nail head/facing connections including consideration of facing flexural and punching shear strength, headed studs tensile strength, upper cantilever, minimum reinforcement ratio, cover and splice requirements.
  11. Other design calculations including, but not limited to, soil nail wall stability at critical stages of construction under prevailing surcharge loads; external soil nail wall stability; and fill compaction criteria.
- Q. Working drawings shall include, but not be limited to the following items:
1. A plan view of the walls identifying:



- a. A reference baseline and elevation datum.
  - b. The offset from the construction centerline or baseline to the face of the wall at its base at all changes in horizontal alignment.
  - c. Beginning and end of wall stations.
  - d. Right-of-way and permanent or temporary construction easement limits, location of all known active and abandoned existing utilities, adjacent structures, abutment drilled shafts or other potential interferences. The centerline of any drainage structure, sewer, or pipe behind, passing through, or passing under or over the wall. Details on how soil nail walls will avoid the existing bridge abutment drilled shafts. Details on how soil nail walls will avoid existing or new utilities or details on the relocation of utilities to avoid conflict with the soil nails. Costs of relocating the utilities and/or the design and construction of details to avoid the utilities shall be included in the cost of the soil nail walls.
  - e. Limit of longest nails.
  - f. Subsurface boring logs (either provided in the plans or additional investigations performed by the wall designer) and exploration locations shown on a plan view of the proposed wall alignment with appropriate reference base lines to fix the locations of the explorations relative to the wall.
2. An elevation view of the walls identifying:
    - a. The elevation at the top of the wall, at all horizontal and vertical break points, and at least every 10 ft along the wall.
    - b. Beginning and end of wall stations.
    - c. The distance along the face of the wall to all steps in the wall base.
    - d. Wall elevation view showing nail locations and elevations; vertical and horizontal nail spacing; and the location of wall drainage elements and permanent facing expansion/contraction joints (as required) along the wall length.
    - e. Existing and finish grade profiles both behind and in front of the wall.
  3. Design parameters and applicable codes.
  4. General notes for constructing the wall including construction sequencing or other special construction requirements.
  5. Horizontal and vertical curve data affecting the wall and wall control points. Match lines or other details to relate wall stationing to centerline stationing.
  6. A listing of the summary of quantities on the elevation drawing of each wall showing estimated square feet of wall face areas and other quantities.
  7. Nail wall typical sections including staged excavation lift elevations, wall and excavation face batter, nail spacing and inclination, nail bar sizes, and corrosion protection details.
  8. A typical detail of production and test nails defining the nail length, minimum drill hole diameter, inclination, and test nail bonded and unbonded test lengths.

9. Details, dimensions, and schedules for all nails, reinforcing steel, wire mesh, bearing plates, headed studs, etc. and/or attachment devices for shotcrete.
10. Dimensions and schedules of all reinforcing steel including reinforcing bar bending details.
11. Details and dimensions for wall appurtenances such as barriers, coping, drainage gutters, fences, etc.
12. Details for constructing walls around drainage facilities.
13. Details for terminating walls and adjacent slope construction.
14. Facing finishes, color and architectural treatment requirements for permanent wall facing elements.

**R. Design Submittals**

1. The design submittals shall include specifications for all materials, procedures, and quality control applicable to the construction of the soil nail walls.
2. The drawings and calculations shall be signed and sealed by the Contractor's Professional Engineer and by the Consultant designer's Professional Engineer (if applicable), previously accepted by the UDOT Engineer. If the soil nail Contractor uses a Consultant designer subcontractor to prepare the design, the soil nail Contractor shall still have overall contract responsibility for both the design and the construction.
3. Submit three sets of the wall drawings with the initial submission. One set will be returned with any indicated corrections. The Engineer will approve or reject the Contractor's submittals within 15 calendar days after receipt of a complete submission. If revisions are necessary, make the necessary corrections and resubmit three revised sets. The Contractor will not be allowed to begin wall construction or incorporate materials into the work until the submittal requirements are satisfied and found acceptable to the Engineer. Changes or deviations from the accepted submittals must be re-submitted for acceptance. No adjustments in contract time will be allowed due to incomplete submittals.
4. Revise the drawings when plan dimensions are revised due to field conditions or for other reasons.
5. Within 30 days after completion of the work, submit as-built drawings to the Engineer. Provide revised design calculations signed and sealed by the approved Registered Professional Engineer for all design changes made during the construction of the walls.

### **3.4 SOIL NAIL WALL CONSTRUCTION REQUIREMENTS**

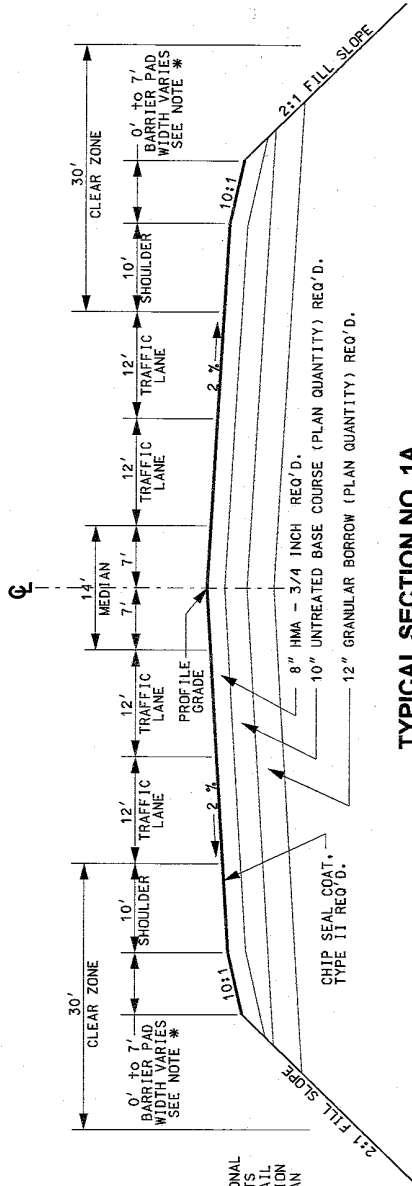
- A.** Construct the walls according to the accepted drawings and the appropriate Sections in the Standard Specifications as applicable. Materials, quality control testing, and construction requirements shall be as set forth in Appendices B1 and C2 respectively (Permanent Soil Nail and Wall Excavation Specification and Shotcrete Facing and Wall Drainage Specification) of FHWA-SA-96-069R, rev

Oct 1998. All portions of those Specifications will apply except for Measurement and Payment, which will be as set forth for this project.

- B. Soil nail wall verification and proof testing shall be in accordance with FHWA-SA-93-068 (rev. July 1998). The Contractor is to conduct all soil nail testing under supervision of the Engineer and submit testing reports to the Engineer. Notify the Engineer at least 48 hours prior to verification and proof testing.
  - 1. Conduct at least 1 verification test for the wall.
  - 2. Verification and proof testing included in lump bid price and will not be paid separately.
  
- C. Prior to start of any wall construction activity, the Contractor and Engineer shall jointly inspect the site to observe and document the pre-construction condition of the site, existing structures and facilities.
  - 1. During construction, the Contractor shall observe the conditions above the soil nail wall on a daily basis for signs of ground movement in the vicinity of the wall.
  - 2. Immediately notify the Engineer if signs of movements such as new cracks in structures, increased size of old cracks or separation of joints in structures, foundations, or paved and unpaved surfaces are observed.
  
- D. Install and monitor, at intervals and locations acceptable to the Engineer, not less than three settlement measurement points near the tops of each of the existing bridge abutment structures closest to the planned soil nail wall locations.
  - 1. A pre-excavation settlement history shall be established by making not less than four sets of readings at even intervals over the three weeks prior to soil nail wall excavation at each abutment.
  - 2. Survey equipment shall be capable of resolving vertical settlements of as little as 0.08 inches and lateral deflections to 0.04 inches.
  - 3. Readings shall reference a fixed point or benchmark that will remain unaffected by excavation activities.
  - 4. Readings shall continue for at least two months following the completion of soil nail walls.
  - 5. Provide Engineer with a report of the readings within 24 hours of obtaining the readings.

END OF SECTION

# TYPICAL SECTION SHEET



## TYPICAL SECTION NO. 1A

### US-6 4-LANE WITH MEDIAN AT WILDLIFE CROSSING

DESIGN SPEED - 65 MPH CLEAR ZONE - 30'

#### WEST SEGMENT

STA. 800+00.00 TO STA. 801+00.00

#### \* NOTE:

1. BARRIER PAD WIDTH VARIES: 0' TO 7' AT STA. 800+00 TO 801+00. SEE DRAWINGS FOR ADDITIONAL REQUIREMENTS FOR CONCRETE BARRIER, GUARDRAIL FLARE TAPERS, AND CRASH CUSHION INSTALLATIONS AS SHOWN ON PLAN SHEET NO. RD-10.

#### GENERAL NOTES:

1. STRIP AND STOCKPILE TOPSOIL FROM EDGE OF EXISTING ROAD TO NEW CATCH POINT EXCEPT ON ROCK OUTCROPPINGS.
2. SPREAD STOCKPILED TOPSOIL FROM THE BOTTOM OF THE UTIC TO THE EDGE OF ALL CUT AND FILL SLOPES AND OTHER AREAS DISTURBED BY CONSTRUCTION.
3. DRILL SEED REQ'D. ON ALL DISTURBED SLOPES 3:1 OR FLATTER. BROADCAST SEED REQ'D. ON ALL SLOPES STEEPER THAN 3:1.
4. WOOD FIBER MULCH REQ'D. ON SLOPES FLATTER THAN 2:1. EROSION CONTROL BLANKET REQ'D. ON SLOPES 2:1 AND STEEPER.
5. ROUND ALL CUT SLOPES ACCORDING TO SLOPE ROUNDING DETAIL ON DETAIL SHEET NO. D1-4.
6. SUPER ELEVATE IN ACCORDANCE WITH SUPER ELEVATION DIAGRAMS ON PROFILE SHEETS.
7. USE 50' TRANSITION LENGTH TO WARP TYPICAL ROADWAY EMBANKMENT SLOPES THAT LIE OUTSIDE THE CLEAR ZONE TO MATCH THE 2:1 WINGWALL SLOPES AS SPECIFIED ON THE STRUCTURE DRAWINGS.

UTAH DEPARTMENT OF TRANSPORTATION		REGION FOUR - RICHFIELD, UTAH		ROADWAY DESIGN	
PROJECT NO. 218.73		US-6: WHITE RIVER		TYPICAL SECTION SHEET	
PROJECT NUMBER		DATE		APPROVAL	
NH-0006(1)216		11/11/07		11/11/07	
DESIGN		CHECK		APPROVAL	
R.D. 2-01-07		R.D. 2-01-07		R.D. 2-01-07	
CHECK		CHECK		CHECK	
R.D. 2-01-07		R.D. 2-01-07		R.D. 2-01-07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION		REVISION		REVISION	
11/11/07		11/11/07		11/11/07	
DATE		DATE		DATE	
11/11/07		11/11/07		11/11/07	
BY		BY		BY	
11/11/07		11/11/07		11/11/07	
REVISION					